

In the claims:

Claim 1. – 48 (Canceled)

Claim 49. (Original) A method comprising providing a substrate having a surface;

providing a plurality of elongated electrical conductors each having a first end and a second end;

bonding each of said first ends to said surface so that said second ends are disposed away from said surface;

forming a dielectric coating on said elongated electrical conductors.

Claim 50. (Original) A method according to claim 49 further including forming a coating of an electrically conductive material on said dielectric coating.

Claim 51. (Withdrawn) A method comprising: providing a substrate having a surface, said surface having a plurality of elongated electrical conductors each having a first end and a second end, each a said first ends being affixed to said surface, each of said second ends being disposed away from said surface; coating said second ends with a first material leaving an uncoated portion of said plurality of elongated conductors; coating said elongated conductors with a dielectric material.

Claim 52. (Withdrawn) A method according to claim 51 further including disposing on said dielectric material a layer of electrically conductive material.

Claim 53. (Withdrawn) A method according to claim 52 wherein said layer of electrically conductive material is deposited by a method selected from the group consisting of electroless plating, electrolytic plating, electrophoretic deposition

and sputtering.

Claim 54. (Withdrawn) A method according to claim 53 further including removing said first material to expose said elongated conductor at said second end.

Claim 55. (Withdrawn) A method comprising:  
providing a substrate having a surface, said surface having a plurality of elongated electrical conductors each having a first end and a second end, each a said first ends being affixed to said surface, each of said second ends being disposed away from said surface;

disposing said substrate in a container containing a solution so that said second ends are not disposed in said solution; said solution being a solution from which a dielectric material can be electrochemically deposited onto an electrically biased surface;

applying an electrical bias to said plurality Of elongated electrical conductors to dispose on that portion of each of said elongated electrical conductors emersed in said solution a dielectric coating.

Claim 56. (Withdrawn) A method according to claim 55 further including disposing said substrate in a second solution from which an electrically conductive material can be electrochemically deposited so that said dielectric coating is emersed in said second solution, applying a bias to said elongated electrical conductors to coat said dielectric material with an electrically conductive material.

Claim 57. (Withdrawn) A method according to claim 55 wherein said dielectric material is an electroactive material.

Claim 58. (Withdrawn) A method comprising: providing a substrate having a surface, said surface having a plurality of elongated electrical conductors each having a first end and a second end, each a said first ends being affixed to said surface, each of said second ends being disposed away from said surface;

coating said second ends with a first material leaving an uncoated portion of said plurality of elongated conductors; disposing said substrate in a container containing a solution;

said solution being a solution from which a dielectric material can be electrochemically deposited onto an electrically biased surface;

applying an electrical bias to said plurality of elongated electrical conductors to dispose on that portion of each of said elongated electrical conductors emerged in said solution a dielectric coating.

Claim 59. (Withdrawn) A method according to claim 58 further including disposing said substrate in a second solution from which an electrically conductive material can be electrochemically deposited so that said dielectric coating is emerged in said second solution, applying a bias to said elongated electrical conductors to coat said dielectric material with an electrically conductive material.

Claim 60. (Withdrawn) A method according to claim 59 further including removing said first material to expose said elongated conductor at said second end.

Claim 61. – 65 (Canceled)

Claim 66. (New) A method according to claim 49 wherein said dielectric coating is selected from the group consisting of polyimides, polyamide-imides, paralynes,

polysiloxanes, epoxies, polyurathanes, perfluorinated polymers, and polypropylenes.

Claim 67. (New) A method according to claim 50 wherein said coating of an electrically conductive material is selected from the group consisting of Cu, Au, Ag, Pt, Pd, Ni and combinations thereof.

Claim 68. (New) A method according to claim 50 further including means for electrically interconnecting said electrically conductive coating on at least a part of said plurality of elongated electrical conductors.

Claim 69. (New) A method according to claim 68 wherein said means for electrically interconnecting at least a part of said plurality of elongated electrical conductors is an electrically conductive coating disposed on at least a part of said surface.

Claim 70. (New) A method according to claim 67 wherein said electrically conductive coating on said plurality of elongated conductors and electrically coating on said surface are a substantially continuous coating.

Claim 71. (New) A method according to claim 70 wherein said substantially continuous coating is selected from the group consisting of a sputter deposited coating, a plasma deposited coating, an electrolytically deposited coating, an electrolessly deposited coating, and electrophoretically deposited coating.

Claim 72. (New) A method according to claim 49 further including a means for maintaining said plurality of said second ends in substantially fixed positions with respect to a reference position.

Claim 73. (New) A method according to claim 49 or 50 wherein said first end is affixed to said surface at an electrical contact location.

Claim 74. (New) A method according to claim 72 wherein said means for maintaining is a sheet or material having a plurality of openings therein through which said second ends project.

Claim 75. (New) A method according to claim 72 wherein said means for maintaining further including means for electrically interconnecting said electrically conductive coating on at least a part of said plurality of elongated electrical conductors.

Claim 76. (New) A method according to claim 49 wherein said second end has a protuberance thereat.

Claim 77. (New) A method according to claim 74 wherein said sheet is formed from a material selected from the group consisting of a rigid material and a compliant material.

Claim 78. (New) A method according to claim 74 wherein said sheet comprises a sheet of electrically conductive material having a plurality of through holes therein, said sheet of material contains a dielectric material to provide a means for preventing said elongated electrical conductors from electrically contacting said sheet of electrically conductive material.

Claim 79. (New) A method according to claim 74 wherein said sheet is spaced apart from said surface by a flexible support.

Claim 80. (New) A method according to claim 79 wherein said flexible support is selected from the group consisting of a spring and an elastomeric material.

Claim 81. (New) A method according to claim 49 wherein said elongated electrical conductors have a shape selected from the group consisting of linear,

piece wise linear, curved and combinations thereof.

Claim 82. (New) A method according to claim 79 wherein said sheet and said flexible support form a space containing said plurality of elongated electrical conductors.

Claim 83. (New) A method according to claim 82 wherein said space is filled with a flexible material.

Claim 84. (New) A method according to claim 83 wherein said flexible material is an elastomeric material.

Claim 85. (New) A method according to claim 78 wherein said sheet has a top surface and a bottom surface and said through holes have a sidewall, said dielectric material coats said top surface and said bottom surface and said sidewall.

Claim 86. (New) A method according to claim 49 wherein said plurality of elongated electrical conductors are distributed into a plurality of groups.

Claim 87. (New) A method according to claim 50 wherein said plurality of elongated electrical conductors are distributed into a plurality of groups.

Claim 88. (New) A method according to claim 86 wherein said plurality of groups are arranged in an array.

Claim 89. (New) A method according to claim 87 wherein said plurality of groups are arranged in an array.

Claim 90. (New) A method according to claim 49 wherein said method that forms a probe for an electronic device.

Claim 91. (New) A method according to claim 90 wherein said electronic device is selected from the group consisting of an integrated circuit chip and a packaging substrate.

Claim 92. (New) A method according to claim 92 wherein each of said groups corresponds to an integrated circuit chip on a substrate containing a plurality of said integrated circuit chips.

Claim 93. (New) A method according to claim 92 wherein said substrate containing said plurality of integrated circuit chips is a wafer of said integrated circuit chips.

Claim 94. (New) An apparatus for using the method formed by the method of claim 49 to test an electronic device comprising:

for holding said method formed by the method of claim 49, means for retractably moving said method formed by the method of claim 49 towards and away from said electronic device so that said second ends contact electrical contact locations on said electronic device, and applying electrical signals to said elongated electrical conductors.

Claim 95. (New) An apparatus for using the method formed by the method of claim 50 to test an electronic device comprising:

holding said method of claim 50, retractably moving said structure formed by the method of claim 50 towards and away from said electronic device so that said second ends contact electrical contact locations on said electronic device, and

applying electrical signals to said elongated electrical conductors.

Claim 96. (New) A method according to claim 49 or 50 wherein there is a protuberance at said second end.

Claim 97. (New) A method according to 74 wherein said sheet comprises a sheet of electrically conductive material having a plurality of first through holes therein, and a sheet of dielectric material having a plurality of second through holes therein, said first through holes are aligned with said second through holes, said first through holes have a smaller diameter than said second through holes to provide a means for preventing said elongated electrical conductors from electrically contacting said sheet of electrically conductive material.

Claim 98. (New) A method according to claim 97 wherein sheet or electrically conductive material has a first side and a second side, said sheet of dielectric material is disposed on either of said first side and said second side of said sheet of electrically conductive material.

Claim 99. (New) A method according to claim 97 where there is disposed on said first side and said second side of said sheet of electrically conductive material a layer of said dielectric material.

Claim 100. (New) A method according to claim 74 wherein said sheet comprises a sheet of rigid material having a plurality of through holes therein, said sheet contains a dielectric material to provide a means for preventing said elongated electrical conductors from electrically contacting said sheet of rigid material.

Claim 101. (New) A method according to claim 74 wherein said sheet comprises a sheet of dielectric material having a plurality of through holes therein, said sheet contains a sheet of a rigid material disposed in contact with said sheet of dielectric material, said sheet of rigid material has an opening therein exposing a



plurality or said through holes to provide a means for support of said dielectric material.

Claim 102. (New) A method according to claim 101 wherein said sheet is spaced apart from said surface by a flexible support, said sheet of rigid material is disposed on said flexible support.